

# Notice of Allowability

Application No.

09/737,552

Examiner

Thomas E Shortledge

Applicant(s)

KEMPE, ANDRE

Art Unit

2654

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Remarks filed on 11/17/2004.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ The drawings filed on 17 November 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see page 3, line 18 through, page 5, line 24, filed November 17, 2004, with respect to claims 1-15 have been fully considered and are persuasive. The 103(a) rejection of claims 1-15 has been withdrawn.

### ***Allowable Subject Matter***

2. The following is an examiner's statement of reasons for allowance:

3. Claims 1 and 11 disclose a method and system for factoring an ambiguous finite-state transducer (FST) into an unambiguous FST and a fail-safe FST by first preprocessing the ambiguous FST to create a fully-unfolded FST. After the fully-unfolded FST has been created the arcs of the FST are grouped into ambiguity fields, where they are group by the following. Arcs that are outside the ambiguity field are copied to both the unambiguous and fail-safe FST, where the arc copied to the fail-safe FST the input symbol is replaced with the corresponding output symbol. Arcs inside the ambiguity filed are copied to both the unambiguous FST while replacing the corresponding output symbol with a diacritic, and copying the arc to the fail-safe FST while replacing the corresponding input symbol with the diacritic.

Kempe (WO 99/01828) teaches a transducer that is able to disambiguate class sequences of any corpus, where each class is disambiguated with respect to a context consisting of a sequence of ambiguity classes limited at both ends by some selected tag. The contexts can be broken into a left and right context, using look-back for the left context and look-ahead for the right context (page 9, lines 10-13, and page 10, lines 3-8). Naik (Efficient Computation of Unique Input/Output Sequences in Finite-State Machines) teaches a finite-state machine and its projections where the projections represent a different group of arcs creating a path through the finite-state machine (Fig. 3). Monteiro et al. (Finite State Machine Decomposition For Low Power) teach adding a transition between two current states of a finite-machine, creating a placeholder where there was an output symbol, (page 760, col. 2).

However, Kempe, Naik, and Monteiro do not teach or suggest creating a fully-unfolded FST, and from the FST copying those arcs that are outside the ambiguity field to both the unambiguous and fail-safe FST, where the arc copied to the fail-safe FST the input symbol is replaced with the corresponding output symbol. Arcs inside the ambiguity field are copied to both the unambiguous FST while replacing the corresponding output symbol with a diacritic, and copying the arc to the fail-safe FST while replacing the corresponding input symbol with the diacritic.

4. Dependent claims 2-10 and 12-15 are allowed since they further limit each of the respective independent claim or their own parent claims.

Art Unit: 2654

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pereira et al. (Finite-State Approximation of Phrase Structure Grammars).

Pereira et al. teach an algorithm for constructing finite-state language models for limited-domain speech recognition tasks.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E Shortledge whose telephone number is (571)272-7612. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (571)272-7628. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2654

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TS  
3/30/2005



TĀLIVALDIS IVARS ŠMITS  
PRIMARY EXAMINER